

ANNUAL PROGRESS REPORT

SEATO Medic Study No. 6	Overt and Inapparent Infections with Arboviruses in Americans Assigned to Thailand
Project No. 3A 025601 A 811	Military Medical Research Program S.E. Asia
Task 01:	Military Medical Research Program S.E. Asia
Subtask 01:	Military Medical Research Program SEASIA (Thailand)
Reporting Installation:	US Army-SEATO Medical Research Laboratory APO 146, San Francisco, California Division of Medical Research Laboratories Department of Virology
Period Covered by Report:	1 April 1963 to 31 March 1964
Principal Investigator:	Major Scott B. Halstead, MC
Associate Investigator:	Dr. Suchinda Udomsakdi
Assistant Investigator:	SSG M.J. Funkenbusch
Reports Control Symbol:	MEDDH-288
Security Classification:	UNCLASSIFIED

ABSTRACT

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The objective of this study is evaluate the health hazards of viral diseases to temporary residents of Thailand. This project studies the etiology of viral illness in American and other foreign residents of Thailand and surveys foreign troops and other groups stationed in Thailand for acquisition of antibody to various arboviruses. With the cooperation of the JUSMAG Medical Unit and the Bangkok Sanitarium and Hospital acute and convalescent sera, throat and rectal swabs are obtained from febrile patients.

In 2 years of study over 250 patients have been incorporated into the study. Over 60 dengue infections and 13 chikungunya infections have been confirmed in the laboratory. Enterovirus studies are reported in SMRL 11. Serum was collected pre and post hemorrhagic fever season from 250 American children and adults in 1963. These have not been tested. In 1963 repeated serum collections were made from the 809th Engineers stationed in Chachoengsao on the southeastern fringe of the Central Plain. No cases of hemorrhagic fever have been reported among American or European residents of Bangkok to date.

BODY OF REPORT

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Objective: This study evaluates the health hazards of viral diseases to temporary residents of Thailand.

Description: The study is concerned primarily with arthropod borne viruses although specimens for enteric and respiratory virus study are also collected. Virologic study is made of febrile patients seen at the JUSMAG Medical Unit or admitted to the Bangkok Sanitarium and Hospital. Acute and convalescent serum and throat and rectal swabs are collected from each patient. Serologic survey is made of incoming military personnel and dependent families before

and after the rainy season (hemorrhagic fever season). Attempts are made to estimate rates of overt, subclinical and inapparent infection.

Progress: Collection of Caucasians with dengue and chikungunya virus infections continues. To date there have been 61 cases of serologically or virologically proven dengue and 13 cases of serologically or virologically proven chikungunya. Of 61 dengue cases, 58 were adults, of 13 chikungunya cases, 4 were adults. The predominance of dengue in adults, it is believed, reflects a syndrome which is age dependent. Apparently, nearly all disease recognized as dengue-like or of sufficient severity for the Medical Unit physician to include in the study occurs almost exclusively in adults. The 3 dengue cases in children all occurred in 1 family and are the children of a physician with special interest in infectious disease. Chikungunya, on the other hand, occurs more frequently in children than adults, or in rough proportion to the Medical Unit population.

In 1962, serologic study of pre- and postseason bleedings of American children and adults resulted in an estimation of a 2% dengue and chikungunya infection rate in Americans living in Bangkok. Nearly every person with antibody conversion had been studied during his or her illness by this laboratory. Thus, the ratio of overt disease to total infections is nearly 1 for these two viruses. In 1963, 250 children and adults were again bled before and after the HF season. These sera have not yet been tested.

Studies of Caucasians in Bangkok are particularly important as observations on the susceptibility of Caucasians to the hemorrhagic fever syndrome. To date, undifferentiated fever and classical dengue fever have been the only syndromes associated with dengue or chikungunya infection in Caucasians of European descent. As data in SMRL 1 shows, there is some evidence that severity of HF may be inversely related to income. For orientals the protection of a high income is not complete. If such relationship implies a role of nutrition in the pathogenesis of Thai hemorrhagic fever, the lack of HF disease in Americans and Europeans with significantly different nutritional habits may be explained. An outbreak of presumable dengue HF in Calcutta has shown that the Caucasian racial group is not insusceptible to the disease. Since it is still uncertain how many Caucasian infections must occur to have a statistically valid expectation of 1 hemorrhagic fever case, it is possible that the insusceptibility of Caucasians to HF in Bangkok may be only apparent. Thus, the controversy continues---host versus virus as the cause of dengue hemorrhagic fever syndrome.

Summary and Conclusions: Although dengue and chikungunya infections are continuously acquired by foreign residents of Bangkok, no unequivocal cases of hemorrhagic fever have yet been reported. It is still uncertain whether host factors or mutant viruses or both are responsible for the disease.